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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,154	03/26/2002	Kjell Arne Ingebrigtsen	15-DS-00546	2728

23446 7590 01/28/2004

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EXAMINER

JAWORSKI, FRANCIS J

ART UNIT	PAPER NUMBER
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3737

5

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,154

Applicant(s)

INGEBRIGTSEN ET AL.

Examiner

Jaworski Francis J.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 54-62 is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

(Parenthesized claim numerals represent the respective claim being addressed.)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 18, 21-39, 43-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Mine et al (US5724976) and Claims 1-53 under 102(e) as being anticipated by Hossack (US6409667) alone or together with Wright et al (US5685308) an essential incorporation-by-reference therein. Both references pertain to structures and methods of use. In the case of Mine et al, Fig. 10 shows first and second active laminated transducer layers connected respectively to first transmission 70-72 and first reception 45-50 and second transmission 40-42 and second reception 52-56 circuits in the context of Doppler and/or B-mode imaging (claims 1, 18, 28, 43, 51) wherein both receivers include passive stages (claim 2) associated with filtering and delay of differing amplitudes prior to being combined in overlay as suggested by the combined modes (Claims 3-5, 10, 21-24, 29, 31, 35-38, 44, 52).. In the case of this later Hossack patent '667 (versus the '851 patent earlier applied), first active layer 12 is connected to

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independent first transmitter circuit 24 and receiver circuit 28, and second laminated active layer 14 is connected to second transmitter circuit 26 and receiver circuit 29 (Claims 1,28,43) with respective varying amplitudes and delays and/or phase inversion with subsequent harmonic summation as per col. 3 line 60 – col. 4 line 48.(Claims 3-5, 10, 21-24, 31, 35-38, 44,51-52). In either case the transmit voltage sources are separate (Claim 6). In the case of Mine et al transmission/reception resonance components are invoked , see col. 15 lines 41-48 applicable to transmit and receive. (Claims 7-8). In the case of Hossack et al ('667), the relative phase delay corrections announced col. 6 bottom appears to be tantamount to a matching function based upon layer characteristic response (Claims 7, 8). Portions of both Mine et al (e.g. col. 16 lines 49-54) and Hossack et al (col. 3 lines 49-52) function as a switch during transmission and reception (Claim 9). Hossack et al makes an essential incorporation by reference of Wright et al , see col. 4 lines 50-59 of the former, the Wright et al digital beamformer includes preliminary A/D conversion Fig. 2B, element R-118; in Mine et al the summed (focused) signals must be digitized for digital scan conversion in 49 or 55 (Claims 11,25-26, 48-50). Filtering 60 in Mine et al is performed after pre-amplification 45 and prior to final amplification for display; in Hossack et al –incorporating Wright et al the filtering occurs again in R-122 after initial amplification R-116 and before final baseband multi-processor amplitude adjustments R-127 et al. (Claims 12-14, 45-47). The filtered outputs in both references pass through passive circuit components and are summatively combined (focusing) prior to coding for video display. (Claims 15-17, 25-27, 32-33, 53). The materials in each layer of the laminate may differ and for each array

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element, see Hossack et al col. 1 lines 48-50 and col. 2 lines 48 – 61. (claims 19-20).

Both Mine et al and Hossack et al operate to reduce initial harmonic transmission by phase combination of transmissions and/or polarity of the bi-laminate in order to display tissue second harmonics, for example Hossack et al col. 6 lines 10 – 56 describes such circuitries (Claims 30, 34). Both Mine et al and Hossack et al are directed to linear (phased) arrays (Claim 39), Hossack et al espouses extension to two-dimensional arrays in Col. 9 lines 14-17 (Claim 40). In Hossack et al the apodization of incorporated Wright et al element C-268 would be frequency variable. (Claims 41-42).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Neither claim 7 nor claim 8 contains definition of the terms used in the equation. Moreover they only inferentially claim the desired impedance matching result without claiming the matching passive components for achieving the desired transmission or reception matches.

Allowable Subject Matter

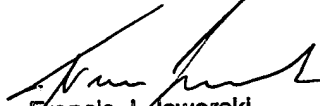
Claims 54-62 are allowed.

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Hossack '667 in col. 9 suggests use of additional layer laminates with no further specificity.

Daniel (US4276491) teaches separate transmit (52 and 62) and receive (54 and 64) circuits associated with a bi-layer transducer 10 and is considered cumulative to Mine et al as applied.

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 703-308-3061.



Francis J. Jaworski
Primary Examiner

FJJ:fjj

1-22-04